CHICAGO INTELLIGENCE TEST IN HARRISON TECHNICAL HIGH SCHOOL

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In September, 1919, we gave to the students entering the Harrison Technical High School as 1B's the preliminary edition of the Chicago Intelligence Test devised by Rugg and Freeman of the University of Chicago. The number of correct responses by each pupil was taken as his score. On the basis of these scores, the pupils taking the various courses were grouped into sections; those making a high score were grouped together, and so down the list. By such a grouping we hoped to have groups for instruction that were more homogeneous in regard to general ability than were obtained by previous methods of grouping.

We had four sections of technical-course boys so grouped. Presented herewith are some of the results of that testing for the technical boys, together with correlations between school marks, ability test scores, scores on Hotz problem and equation scales, and scores in Kelley's Silent Reading Test. Our school marks are recorded as D, F, G, E, or S; D being failure, G, average, and S, superior. To obtain a numerical score, the following equivalents were assumed: $D = 1$, $F = 2$, $G = 3$, $E = 4$, and $S = 5$. The numbers for their four major subjects were added to get a composite school mark for each pupil.

Table I shows the distribution of scores in the general ability test along with the composite school marks. The correlation coefficient is .30. This indicates that there is some relationship existing, but it is not great. Below we show the relationship further.

Table II shows the percentages for the various marks occurring in each group tabulated; I, II, III, and IV are the groups in order from best to poorest as determined by scores in the Chicago Intelligence Test. It may be noted that the percentages of failures

(D's) and the percentages of "fairs" (F's), the two lower marks, increase as we go from the best to the poorest group, and that the percentages of the higher grades, G's, E's, and, S's, decrease as we go from "best" to "poorest" group. Indeed there are no S grades in either of the two lower groups. Here again it is evident that the test classified the students fairly well according to their ability to do high-school work, as measured by teachers' grades.

TABLE I
COMPOSITE SCHOOL MARKS

Number Right—Freeman and Rugg	4–5	6–7	8–9	10–11	12–13	14–15	16–17	18–19	Total
46–50						2			2
41–45			2	2	1				5
36–40			1	2	6		1		10
31–35		1	5	5	3	1	2	1	18
26–30	7	5	8	7	6	1			34
21–25	6	5	11	9	4		2		37
16–20	2	3	4	4	2				15
11–15		1	2	3	1				7
6–10		1	1						2
Total	15	16	34	32	23	4	5	1	130

TABLE II
SCHOOL MARKS

Ability Groups	D	F	G	E	S
I	9	32	39	13	7
II	16	40	27	12	5
III	25	46	21	6	0
IV	26	49	19	5	0
Whole group	19	42	26	10	3

In both tables correlations between the ability scores and school marks have no doubt been reduced because of the desire on the part of the authorities in our school to make grades distribute in accordance with the normal probability curve; each teacher was probably led to judge each class to some extent on its own standard, to the end that the grades of each group might approximate a "normal" distribution. A mark in a lower group might not mean as much as the same mark in a higher group. In spite of this, the relationship is evident.

It will also be noticed that the percentages of marks for the whole group skew to the low end of the scale. This is in agreement with the evidence of the ability scores, if this test does measure general ability, for the median for the whole technical group in the intelligence test was lower than the median for the whole school; the two medians were 25 and 27.5 respectively. (See Fig. II for curves.) It is to be expected, then, that if the technical group is of lower ability than the whole group, it will receive a greater proportion of the low marks. This seems to have been the case.

The intelligence score as used above consisted of the total number of correct responses for the individual and not the weighted score as recommended by the authors of the tests. We used the total score because of the relative ease of scoring by that method. However, we later computed the weighted scores and found the correlation with "total rights" to be .82. We considered this sufficiently high to justify our using the simpler method of scoring, namely, the "total rights" in classifying our entering class of February, 1920.
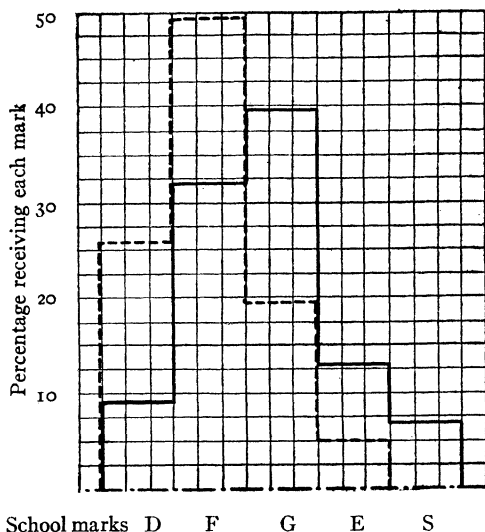

FIG. 1.—The distribution of marks for the best room, I (solid line), and the worst room, IV (broken line). The superiority of room I is very evident.

We have scores for this group in (1) the Chicago Intelligence Test—"Total Rights," (2) the Chicago Intelligence Test—Weighted Scores, (3) Kelley's Silent Reading Test, (4) Composite School Marks, and (5) Hotz Equation and Problem Test (sum of rights). Between these scores, the correlations were:

1 with 2 82
1 with 3 42
1 with 4 30
1 with 5 50
2 with 3 38
2 with 4 32
2 with 5 50
3 with 4 23
3 with 5 32
4 with 5 46

From these correlations, we get further assurance that the "total rights" is as good a score for our purpose as the more cumbersome weighted score, for it is seen that the two scores have a
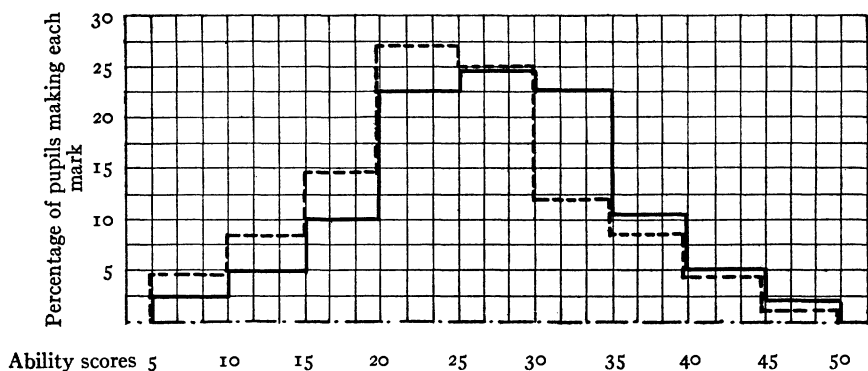

FIG. 2.—The distribution of ability scores for the whole school (solid line) and for technical group (broken line).

correlation cofficient of .82 (very high) and that each correlates about equally well with the other tests.

Also we note that the uniform tests, the Kansas Silent Reading Test and the Hotz problem and equation scales, have higher correlation with the intelligence scores than do composite school marks. This points out definitely the tendency of the teachers to grade each group on its own standard and indicates that the various letters, D, F, G, E, S, have different meanings in the different groups.

The evidence appears to justify the conclusion that the Chicago Intelligence Test does classify students fairly well according to their ability to succeed in the high school.